

REMARKS

Claims 1-4 and 6-15 are now present in this application. By this response, claim 15 is added. Reconsideration and allowance based on the following remarks are respectfully requested.

Rejections under 35 U.S.C. §103

Claims 1, 6, 10 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eggert, Jr. (US 4,267,895) in view of Nelson et al. (US 6,131,681) and claims 2-4, 7-9, and 12-14 stand rejected in view of Eggert, Nelson, and Ishida et al. (US 6,705,865). These rejections are respectfully traversed.

Applicant's independent claims 1, 6 and 11 each recite specific implementation of filters and filtered air as it pertains to a hybrid engine (thermal engine and electric motor).

Claim 1 recites, inter alia, wherein at least part of filtered air from an air filter for supplying filtered air to the thermal engine is redirected to pass in such a way that at least some internal parts of the electric motor will obtain cooling from the filtered air. (emphasis added).

Claim 6 recites, inter alia, channels for receiving said filtered air and directing the filtered air to pass in such a way that at least some internal parts of the electric motor will obtain cooling from said filtered air. (emphasis added).

Claim 11 recites, inter alia, providing at least part of the filtered air from the air filter to the inside of the electric motor to provide cooling thereof. (emphasis added).

Applicant respectfully submits that the combination of teachings from Eggert and Nelson fail to teach or suggest any type of specific filtered air flows beyond standard engine compartment air flows.

In the new grounds of rejection the Examiner has added the reference Nelson et al. (US Patent 6,131,681) to teach the claimed "filter" which the Examiner now concedes is not taught by Eggert. Despite the addition of the Nelson reference, the

combination of references do not teach the inventive concept. The Examiner considers

Eggert to teach an airflow that is partially redirected to pass over an electric motor and thus alleges it would be obvious to provide a filter as taught by Nelson to achieve the claimed invention. While it is true that an airflow in Eggert is directed to both a thermal part of the engine and an electric part of the engine, this teaching does not address the claimed features of directing the airflow so that it is made to pass some internal parts of the electric motor. At best Eggert teaches that the air flows over the compartmental area of the electric motor, but there is no teaching that air flow is directed to the specific internal parts of the electric motor.

Further, Nelson teaches a filter used on the grill of a car as a winter front so as to restrict super cold air from entering the engine. Applicant's claims are directed to filtered air flows that are directed to pass some internal parts of the electric motor so as to eliminate dust and other fine particles from entering, for example, the traction motor. This type of filtering is specific to the internal electric motor parts and always implemented, whereas Nelson's filter is only used during cold winter conditions only and is not designed to always be used and is not designed to reduce dust and fine particles from entering the internal motor parts, let alone internal electric motor parts.

It appears that the Examiner has focused his attention on the claimed filter and disregarded the specific use of the filter and air flow directionality recited in claims. However, while we previously argued that Eggert does not teach a filter as claimed, Applicants have never stated that this feature by itself is novel. The novelty lies in the use of filtered air from an air filter of the thermal engine which is made to pass at least some internal parts of the electric motor. The combination of Eggert and Nelson at best would lead to a filter used for the intake of air for the internal engine compartment including the thermal and electric motor areas, but not directed to pass some internal parts of the electric motor.

Thus, Applicant respectfully submits that the combination of Eggert and Nelson fail to teach each and every feature of independent claims 1, 6 and 11 as required.

With respect to the dependent claims, Ishida is provided allegedly teach the features of "air cooling around motor windings, permanent magnets, and rotor/stator"

(page 4 of the office action). Applicant respectfully submit that Ishida discloses a design to improve the cooling of what obviously is a generator for a 12 V DC system in a conventional car (alternator). It has stator windings 34 and 34R and a rotor without permanent magnets but with a DC activated armature coil 32 in the rotor. The rotor armature coil is fed over two slip ring brushes. By adjusting the armature current, the output voltage can be kept at a desired value for all speeds over a certain lower limit.

Ishida does not have to worry about sand, dust and other pollutants being supplied by the air streams "a" and "b" passing the stator coil 34R. The voltage over the stator coils are suitable to charge a 12 V battery and are therefore in the order of 17 volts peak to peak, phase to phase and some 10 V peak over one phase.

The traction motors in a hybrid have coils fed by a battery of some 200 to 600 volt over switch transistors that causes the coil voltage to switch from, for example, +400 V to - 400 V in a fraction of a microsecond. This causes ringing that increases the peak voltages with some 50%. Pollution of surfaces is not a problem for the 10 V phase voltage of Ishida. It would be a major problem for a traction motor with 600 V peak over its coils.

As Ishida's machine is a generator, it will not generate any current unless it runs at a considerable speed. It can therefore use a fan assembled on its own shaft. If it is rotating slowly there will not be much air pressure, but no current and therefore no stator coil heating.

A traction motor powering a car uphill in a traffic congestion has to supply lots of torque at no or very low speed. It therefore requires a cooling system that is independent of its own speed.

Essentially Ishida teaches a fan at the end of a stator coil of an alternator that is used to provide a general cooling air flow. This airflow is neither filtered or directed to pass some internal parts of an electric motor in the context of the claimed features. One of ordinary skill in the art would not look to Ishida's teachings related to an alternator to be applied with an electric motor as part of a powertrain of a vehicle. They are not analogous in terms of design, function or use.

Thus, in view of the above, applicant respectfully submits that the combination of Eggert, Nelson and Ishida fail to establish a prima facie obviousness of dependent claims 2-4, 7-9 and 12-14. Further, newly added dependent claim 15 is not taught by the combination of references.

Applicants respectfully submit that the combination of elements as set forth in claims 1-4, 6-10 and 12-15 is not disclosed or made obvious by the prior art of record, for the reasons explained above. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

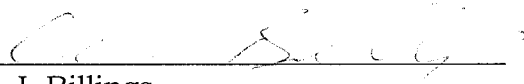
In view of the above amendment, Applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad J. Billings, Registration No. 48917 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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(Thursday After Holiday)

Respectfully submitted,

By 
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